# NEW SPECIES OF CHTHONIIDAE AND NEOBISIIDAE (ARACHNIDA, PSEUDOSCORPIONES) FROM MONTENEGRO, YUGOSLAVIA 

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#### Abstract

The pseudoscorpions of the genera Chthonius C.L. Koch 1843 (Chthoniidae) and Roncus L. Koch 1873 (Neobisidae) from Montenegro, Yugoslavia have been studied. Three new species, Chthonius (Chthonius) prove, Roncus hors, and R. davor are described. Diagnostic characters of the analyzed taxa are thoroughly described and figured. Taxonomic interrelationships and geographical distribution are briefly discussed. Including these three species, the family Chthoniidae occurs with five species in Montenegro, the family Neobisiidae with 13 species.


Only two cave (troglophilic) species of Chthonius C.L. Koch 1843 (subgenus Chthonius s. str.) (Chthoniidae) are presently known from Montenegro, Yugoslavia, viz. C. (C.) exarmatus Beier 1939 and C.(C.) porevid Ćurčić, Dimitrijević \& Makarov 1996; the former species inhabits a cave on Mt. Orjen, while the latter populates the Knezlaz Pećina Cave, Krivošije, Mt. Orjen, near Risan (Ćurčić et al. 1996b). To date, only two pseudoscorpions of the genus Roncus L. Koch 1873 (Neobisiidae) are known to inhabit Montenegro (Ćurčić et al. 1996a,b). These are: Roncus yaginumai Ćurčić, Ćurčić \& Dimitrijević 1996, from a cave on the isle of Vranjina, near Podgorica, and $R$. belbog Ćurčić, Dimitrijević \& Makarov 1996, from the Knezlaz Pećina Cave (also the type-locality of $C$. (C.) porevid) (Ćurčić et al. 1996a, b).

The aim of this study is to present descriptions of three new species (one of Chthonius and two of Roncus), as well as to define their precise taxonomic status. With the new species described in the present study, the total number of the Chthoniidae inhabiting Montenegro is now five, and of the Neobisiidae 13 species (Ćurčić 1974, 1988).

## METHODS

In the present study, material from three samples of pseudoscorpions collected in 1991 and 1992 has been examined. The first sample from a cave in the village Gornji Morinj, near

Risan, Montenegro (Yugoslavia), contained two new taxa: Chthonius (Chthonius) prove new species, and Roncus hors new species. The other two samples from Mt. Durmitor (from the canyon of the Sušica River and the village of Tepca, 1000-1100 m elev.), Montenegro (Yugoslavia), contained another undescribed species: Roncus davor new species. The new species described in this paper are probably endemic forms inhabiting either caves (C. prove new species and $R$. hors new species) or epigean habitats ( $R$. davor new species). All studied pseudoscorpion specimens were mounted on slides in Swan's fluid (gum chloral medium) and deposited in the collections of the Institute of Zoology, Faculty of Biology, University of Belgrade, Yugoslavia. All trichobothrial designations are in accordance with Beier (1932). Terminology for pedipalpal and pedal podomeres follows Harvey (1992).

## CHTHONIIDAE Daday 1888

## Chthonius (Chthonius) prove new species

 Figs. 1-5; Table 1Etymology.-In Slav mythology, Prove is the deity of justice (Petrović 1995).

Specimen examined.-Holotype female, from a cave in the village Gornji Morinj, near Risan, Montenegro, Yugoslavia; 27 June 1991 (collected by I.M. Karaman, together with the holotype male of Roncus hors new species).

Description.-Carapace slightly longer than wider (almost quadrangular); epistome differentiated (Fig. 4). Neither eyes nor eye-spots developed. Setal formula: $\mathrm{m} 4 \mathrm{~m}+6+4+2+4=22$ setae (a single microseta in the preocular recess on either side). A pair of posterior and lateral setae of unknown size (broken). Carapace paleyellowish and transparent.

Tergites I-X and sternites IV-X smooth, entire and uniseriate. Tergal formula: 4-4-4-6-6-6-6-6-6-6. Female genital area: sternite II with 8 setae clustered medially and posteriorly in the form of a triangle. Sternite III with 8 setae and 3 suprastigmatic microsetae along each stigma. Sternite IV with 7 posterior setae and 3 microsetae on either side. Sternites V-X each with $8-10$ setae. Male genital area: unknown. Pleural membranes granulostriate.

Cheliceral spinneret (galea) in the form of a small sclerotic tubercle (Fig. 5). Cheliceral palm with six setae and two or three accessory microsetae, movable finger with one seta. Fixed cheliceral finger with two distal large teeth and a row of eight pointed and contiguous teeth which diminish in size proximally. Movable cheliceral finger with a small isolated tooth (just below the level of the galea), one large tooth, and a series of 12 triangular teeth, slightly asymmetrical and diminishing in size proximally. Dentition of cheliceral fingers as in Fig. 5. Galeal seta inserted basal to the teeth of the movable cheliceral finger. Flagellum of 11 blades, one small blade proximally and 10 blades twice this length, more or less in pairs, distally. The most distal members of the series are curved but all, to some extent, are pinnate on two sides.

Manducatory process (apex of pedipalpal coxa) with two long setae, pedipalpal coxa with three setae. Trochanter short, other pedipalpal articles moderately elongate (Figs. 1, 2). Chelal fingers of almost equal size. Fixed chelal finger is slightly $S$-shaped, and the movable finger is somewhat curved inwards, or C-shaped (Fig. 2). Tip of fixed finger (distal to $e t$ ) bears 2 or 3 small distal teeth. Fixed chelal finger with 29 triangular teeth which occupy almost the whole length of the finger blade; distal and proximal members of this series are close-set, whilst the median teeth are spaced and slightly asymmetrical. Movable chelal finger with 16-18 teeth; distal and median members are inclined backwards, and
these are followed by small, low and asymmetrical teeth; at the level of $b-s b$, these teeth merge into a dental lamella. Chelal fingers are longer than chelal palm, and pedipalpal femur is slightly shorter than chelal fingers, but almost as long as carapace (Table 1).

Trichobothriotaxy: $i b$ and isb on chelal palm; fixed chelal finger with a further six trichobothria (et, est, esb, eb, it, and ist, and a pair of accessory setae nearer to et than to the finger tip); movable chelal finger bears four trichobothria ( $t, s t, s b$, and $b$ ). Seta esb distal to $e b$, ist closer to $e s b$ than to $e b$ and distal to the former; it close to est; it-est at the level of $t$-st; et close to accessory setae. Seta $s b$ closer to $b$ than to $s t$; st nearer to $t$ than to $s b$. Distance $s t$-sb is almost $1.8 \times$ as long as $b$-sb; distance $t$-st more than $8 \times$ as long as $s b$-st. Seta $b$ at the level of ist (Fig. 2).

Coxa II bears 7 or 8 spines, and coxa III has 3 or 4 spines which are elongate and finely pinnate on two sides. Intercoxal tubercle with two small setae. Tibia IV, metatarsus IV, and tarsus IV each with a long tactile seta.

The whole specimen is depigmented and delicate in appearance. Measurements and morphometric ratios are presented in Table 1.

Distribution.-South Montenegro, Yugoslavia, in a cave; probably endemic species.

Diagnosis.-This new species is phenetically most similar to $C$. (C.) ischnocheles reductus Beier 1939, from the Jama Pothole on the island of Giuppana (Šipun), Croatia, as well as to C. (C.) absoloni Beier 1939, from the Dužice Pećina near Trebinje, south Hercegovina, Bosnia-Hercegovina. From C. (C.) ischnocheles reductus, C. (C.) prove is easily distinguished by the color of the body (yellow, with reddish-brown appendages vs. pale, almost transparent), in the presence/absence of eyes (present vs. absent), in the carapacal setation ( 18 vs. 22 setae), in the setal formula of tergites I-X (4-4-4-4-6-6-6-6-4-4 vs. 4-4-4-6-6-6-6-6-6-6), in the pedipalpal chelal length to breadth ratio of females ( 5.00 vs. 4.055 ), in the number of teeth on the fixed chelal finger of females ( 48 vs. 29), in the pedipalpal chelal length of females ( 0.92 mm vs. 0.73 mm ).

The new species is clearly distinct from $C$. (C.) absoloni in a number of morphological traits: the carapacal setation ( 22 vs. 18 setae),


Figures 1-5.-Chthonius (Chthonius) prove new species, holotype female. 1, Pedipalp (trichobothria omitted); 2, Pedipalpal chela (trichobothria omitted); 3, Leg IV; 4, Carapace; 5, Chelicera. Scale lines in mm.

Table 1.-Linear measurements (in mm) and selected morphometric ratios in Chthonius (Chthonius) prove new species, Roncus hors new species and Roncus davor new species, all from Montenegro, Yugoslavia. Abbreviations: $\mathrm{TS}=$ tactile seta, $\mathrm{T}=$ tritonymph, $\mathrm{D}=$ deutonymph.

| Character | C. (C.) prove ㅇ | R. hors | ¢ $¢$ | R. davor $\sigma^{\circ}{ }^{\circ}$ | T | D |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Body |  |  |  |  |  |  |
| Length (1) | 1.58 | 2.04 | 2.445-3.18 | $2.30-2.75$ | 2.13 | 1.63 |
| Cephalothorax |  |  |  |  |  |  |
| Length (2) | 0.51 | 0.60 | 0.64-0.73 | 0.48-0.69 | 0.55 | 0.40 |
| Breadth | 0.48 | 0.51 | 0.58-0.66 | 0.45-0.62 | 0.38 | 0.38 |
| Abdomen |  |  |  |  |  |  |
| Length | 1.07 | 1.44 | 1.715-2.54 | 1.82-2.06 | 1.58 | 1.23 |
| Breadth | 0.64 | 0.69 | 0.96-1.31 | 0.86-0.99 | 0.75 | 0.58 |
| Chelicerae |  |  |  |  |  |  |
| Length (3) | 0.46 | 0.35 | 0.40-0.48 | 0.40-0.425 | 0.34 | 0.25 |
| Breadth (4) | 0.27 | 0.25 | 0.22-0.24 | 0.23-0.24 | 0.18 | 0.12 |
| Length of movable finger (5) | 0.24 | 0.18 | 0.27-0.33 | 0.28 | 0.23 | 0.15 |
| Length of galea | 0.01 | 0.005 | 0.01 | 0.01 | 0.005 | 0.003 |
| Pedipalps |  |  |  |  |  |  |
| Length with coxa (6) | 2.03 | 2.90 | 3.245-3.845 | 3.52-3.64 | 2.53 | 1.70 |
| Length of coxa | 0.31 | 0.48 | 0.55-0.61 | 0.51-0.55 | 0.425 | 0.25 |
| Length of trochanter | 0.23 | 0.36 | 0.38-0.47 | 0.44-0.45 | 0.32 | 0.22 |
| Length of femur (7) | 0.52 | 0.58 | 0.60-0.795 | 0.70-0.71 | 0.53 | 0.33 |
| Breadth of femur (8) | 0.12 | 0.18 | 0.205-0.25 | 0.20-0.22 | 0.16 | 0.13 |
| Ratio 7/8 | 4.33 | 3.22 | 2.93-3.18 | 3.23-3.50 | 3.31 | 2.54 |
| Ratio 7/2 | 1.02 | 0.97 | 0.94-1.09 | 1.03-1.46 | 0.96 | 0.825 |
| Length of patella (tibia) (9) | 0.24 | 0.48 | 0.555-0.64 | 0.57-0.62 | 0.41 | 0.27 |
| Breadth of patella (tibia) (10) | 0.13 | 0.22 | 0.26-0.33 | 0.27-0.28 | 0.195 | 0.14 |
| Ratio 9/10 | 1.85 | 2.18 | 1.94-2.13 | 2.11-2.21 | 2.10 | 1.93 |
| Length of chela (11) | 0.73 | 1.00 | 1.16-1.33 | 1.30-1.31 | 0.845 | 0.63 |
| Breadth of chela (12) | 0.18 | 0.28 | 0.41-0.46 | 0.38-0.40 | 0.275 | 0.195 |
| Ratio 11/12 | 4.055 | 3.57 | 2.83-2.89 | 3.275-3.42 | 3.07 | 3.06 |
| Length of chelal palm (13) | 0.27 | 0.46 | 0.52-0.64 | 0.59-0.63 | 0.40 | 0.31 |
| Ratio 13/12 | 1.50 | 1.64 | 1.27-1.39 | 1.55-1.575 | 1.45 | 1.59 |
| Length of chelal finger (14) | 0.55 | 0.54 | 0.64-0.69 | 0.68-0.71 | 0.445 | 0.32 |
| Ratio 14/13 | 2.04 | 1.17 | 1.08-1.23 | 1.08-1.20 | 1.11 | 1.03 |
| Leg IV |  |  |  |  |  |  |
| Total length | 1.595 | 2.08 | 2.395-2.68 | 2.51 | 1.84 | 1.085 |
| Length of coxa | 0.22 | 0.36 | 0.40-0.47 | 0.38 | 0.34 | 0.20 |
| Length of trochanter (15) | 0.18 | 0.27 | 0.31-0.34 | 0.33 | 0.22 | 0.16 |
| Breadth of trochanter (16) | 0.12 | 0.12 | 0.13-0.17 | 0.17 | 0.10 | 0.09 |
| Ratio 15/16 | 1.50 | 2.25 | 2.00-2.38 | 1.94 | 2.20 | 1.78 |
| Length of femur + patella (17) | 0.45 | 0.54 | 0.62-0.72 | 0.65 | 0.47 | 0.26 |
| Breadth of femur + patella (18) | 0.19 | 0.19 | 0.20-0.27 | 0.24 | 0.185 | 0.11 |
| Ratio 17/18 | 2.37 | 2.84 | 2.67-3.10 | 2.71 | 2.54 | 2.36 |
| Length of tibia (19) | 0.30 | 0.46 | 0.535-0.59 | 0.58 | 0.40 | 0.205 |
| Breadth of tibia (20) | 0.085 | 0.10 | 0.11-0.12 | 0.13 | 0.10 | 0.075 |
| Ratio 19/20 | 3.53 | 4.60 | 4.86-4.92 | 4.46 | 4.00 | 2.73 |
| Length of metatarsus (21) | 0.14 | 0.17 | 0.19-0.23 | 0.22 | 0.16 | 0.10 |
| Breadth of metatarsus (22) | 0.07 | 0.075 | 0.08 | 0.09 | 0.08 | 0.06 |
| Ratio 21/22 | 2.00 | 2.27 | 2.375-2.875 | 2.44 | 2.00 | 1.67 |
| Length of tarsus (23) | 0.305 | 0.28 | 0.33-0.34 | 0.35 | 0.25 | 0.16 |
| Breadth of tarsus (24) | 0.04 | 0.06 | 0.075-0.08 | 0.08 | 0.07 | 0.06 |

Table 1.-Continued.

| Character | C. (C.) prove ㅇ | R. hors ઠ | ¢ 9 | R. davor ઠ す | T | D |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Ratio 23/24 | 7.625 | 4.67 | 4.125-4.53 | 4.375 | 3.57 | 2.67 |
| TS ratio-tibia IV | 0.53 | 0.59 | 0.54-0.56 | 0.61 | 0.54 | 0.43 |
| TS ratio-metatarsus IV | 0.43 | 0.26 | 0.16-0.285 | 0.23 | 0.21 | 0.32 |
| TS ratio-tarsus IV | 0.26 | 0.31 | 0.32-0.35 | 0.37 | 0.33 | 0.36 |

the setation of tergites I-V (4-4-4-6-6 vs. 4-4-4-4-6), in the pedipalpal chelal length to breadth ratio of females ( 4.055 vs. 5.80 ), in the number of spines on coxae II of females ( 7 or 8 vs. 5 ), in the form of both pedipalpal chelal palm and chelal finger (less elongate vs. more elongate) (Fig. 2; Beier 1939, fig. 3).

Neobisiidae J.C. Chamberlin 1930
Roncus hors new species
Figs. 6-12; Table 1
Etymology.--In Slav mythology, Hors is the God of Sun (Petrovic 1995).

Specimen examined.-Holotype male,


Figures 6-12.-Roncus hors new species, holotype male. 6, Carapace; 7, Epistome; 8, Chelicera; 9, Pedipalp; 10, Pedipalpal chela (trichobothria omitted); 11, Leg IV; 12, Genital area. Scales in mm.
from a cave in the village Gornji Morinj, near Risan, Montenegro, Yugoslavia; 27 June 1991 (collected by I.M. Karaman, together with the holotype female of $C$. (C.) prove new species).

Description.-Epistome small (but distinct), triangular and apically rounded (Figs. 6,7 ). A single pair of eyes developed; eye lenses somewhat reduced and flattened. Setal formula: $4+7+5+1+6=23$ setae (male) (Fig. 6). Carapace reticulate throughout.

Abdominal tergite setal formula (I-X): 6-9-11-11-11-11-11-10-10-10. Both tergites I-X and sternites IV-X entire, uniseriate, and smooth. Twelfth abdominal segment with two pairs of small setae. Female genital area: unknown. Male genital area: sternite II with 12 long median and posterior setae (of these, 6 setae are retromarginal); sternite III with 5 $(3+2)$ anterior, 10 posterior setae, and 3 suprastigmatic setae on either side; sternite IV with 10 posterior setae and 3 microsetae along each stigma. Sternites V-X with 13-15-14-13-13-13 setae.
Galea distinct, low and rounded. Cheliceral palm with 6 , movable finger with one seta (Fig. 8). Cheliceral dentition as in Fig. 8. Flagellum with one short proximal blade and seven longer blades distally, characteristic of the genus Roncus.

Apex of pedipalpal coxa (manducatory process) with four long setae. Pedipalpal trochanter with a small tubercle. A small exterolateral tubercle on pedipalpal femur present; pedipalpal femur and chelal palm with interior granulations, patella (tibia) smooth (Fig. 9). A single tiny tubercle present on the interolateral side of the chelal palm. No group of microsetae proximal to trichobothria $e b$ and $e s b$; instead, some small setae distal to $e b$ and $e s b$ (6-8) present. Fixed chelal finger with 47 small, asymmetrical, and close-set teeth; movable finger with 47 small and contiguous teeth. Chelal fingers longer than chelal palm and only slightly shorter than pedipalpal femur (Table 1). Trichobothrial pattern: ist slightly closer to est than to $i s b ; s b$ equidistant from $b$ and st; st closer to $t$ than to $s b$. Distribution of trichobothria as illustrated in Fig. 10.

Leg IV: tibia, metatarsus, and tarsus each with a long tactile seta.

Morphometric ratios and linear measurements are presented in Table 1.

Distribution.-South Montenegro, Yugoslavia, in a cave; probably endemic species.

Diagnosis.-This new species is easily distinguished from its phenetically similar congener, R. yaginumai, by the setation of the carapace ( 23 vs. $24-27$ setae), by the form of the pedipalpal podomeres (stout vs. elongate) (Figs. 9, 10) (Ćurčić et al. 1996a), by the number of teeth on the fixed ( 47 vs. $62-70$ ) and movable chelal fingers ( 47 vs. $62-65$ ), by the carapace length ( 0.60 mm vs. $0.81-1.02 \mathrm{~mm}$ ), by the pedipalpal length ( 2.90 mm vs. 4.49 5.33 mm ), by the ratio of the pedipalpal femur length to breadth ratio ( 3.22 vs. $3.52-3.89$ ), by the pedipalpal chelal length ( 1.00 mm vs. $1.64-1.94 \mathrm{~mm}$ ), by the pedipalpal tibia length to breadth ratio ( 2.18 vs. 3.35-3.63), and by the body size (smaller vs. larger) (Table 1) (Ćurčić et al. 1996a).

From another epigean species from Montenegro $R$. davor new species, $R$. hors new species differs in many important respects: the form of the galea (lower vs. higher; Figs. 8, 29 , and 30 ), in the cheliceral length of males ( $0.40-0.425 \mathrm{~mm}$ vs. 0.35 mm ), in the pedipalpal length of males ( $3.52-3.64 \mathrm{~mm}$ vs. 2.90 mm ), in the shape of the pedipalpal chelal palm (almost globular vs. ovate), in the pedipalpal femur length of males ( $0.70-0.71 \mathrm{~mm}$ vs. 0.58 mm ), in the pedipalpal chelal length of males ( $1.30-1.31 \mathrm{~mm}$ vs. 1.00 mm ), in the walking leg IV length of males ( 2.51 mm vs. 2.08 mm ), and in the body size (larger vs. smaller) (Table 1).

## Roncus davor new species

Figs. 13-25; Table 1
Etymology.-In Slav mythology, Davor is a chthonic deity, the son of Triglav (Petrović 1995).

Specimens examined.-Holotype female, and allotype male, from the canyon of the Sušica River, Mt. Durmitor ( 1100 m elev.), Montenegro, Yugoslavia, collected on 4 August 1992 by I.M. Karaman. Paratypes: 19 , 1 む, 2 tritonymphs, and 1 deutonymph, from the village of Tepca, Mt. Durmitor ( 1000 m elev.), Montenegro, Yugoslavia, 5 August 1992, same collector (together with a specimen of Neobisium sp.).

Description (based on adults).-Epistome small and rounded, knob-like; (Fig. 14) or low and triangular (Fig. 20). A pair of small eyes (with flattened lenses) present (Figs. 13, 19).


Figures 13-18.-Roncus davor new species, holotype female. 13, Carapace; 14, Epistome; 15, Chelicera; 16, Leg IV; 17, Right pedipalp (trichobothria omitted); 18, Pedipalpal chela (trichobothria omitted). Scales in mm.

Setal formulae: $4+6+2+4+2+6=24$ (female) and $4+6+2+4+2+6=24$ setae (male). Carapace reticulate throughout.

Tergites I-X with 6-9-11-12-11-11-12-12-11-9, 6-8-10-11-12-11-12-11-11-10 (females), and $6-8-10-11-10-11-11-10-9-9$ setae (male). Abdominal tergites I-X and sternites V-X smooth, uniseriate, and entire. Female genital area: sternite II with $10-12$ small setae, clustered into two groups on either side of the mid-line; sternite III with 10 or 11 posterior
setae and 3 or 4 suprastigmatic setae on either side; sternite IV with 11 or 12 marginal setae and 3 small setae along each stigma. Male genital area (Fig. 22): sternite II with 14-17 median and posterior setae (of these, 9 or 10 are retromarginal); sternite III with $4-7$ ( $2+2$ or $3+4$ ) anterior, $10-12$ posterior setae, and 3 or 4 suprastigmatic setae on either side; sternite IV with $7-10$ posterior setae and 3 mi crosetae along each stigma. Sternites V-X with 14-13-15-15-14-12 and 14-15-13-14-


Figures 19-25.-Roncus davor new species, allotype male. 19, Carapace; 20, Epistome; 21, Pedipalpal chela (trichobothria omitted); 22, Genital area; 23, Pedipalp; 24, Cheliceral fingers; 26, Leg IV. Scale lines in mm .

15-14 (female) and 14-14-13-13-14-13 and 14-15-13-14-15-14 setae (male). Twelfth abdominal segment with two pairs of small setae.

Cheliceral spinneret (galea) small, low, and rounded (Figs. 15, 24). Cheliceral palm with six setae, movable finger with one seta. Flagellum eight-bladed ( 1 short proximal blade and seven longer blades distally), characteristic of the genus Roncus.

Apex of pedipalpal coxa with four long setae. Pedipalpal trochanter with a small tubercle, femur with a small exterolateral tubercle and interior granulations; patella (tibia) smooth; chelal palm either with interior (Fig. 17) or with both interior and exterior granulations (Fig. 23). Chelal palm ovate (dorsal
view). No microsetae proximal to trichobothria $e b$ and $e s b$; instead, 5-8 microsetae distal to $e b$ and $e s b$ present (Figs. 18, 21). Fixed chelal finger with (male) 53-56 and (female) 55-57 teeth, movable chelal finger with 5456 (male) and 55-57 teeth (female). Chelal fingers longer than chelal palm and distinctly shorter than pedipalpal femur (Table 1). Trichobothrial pattern: ist equidistant from isb and est; sb equidistant from $b$ and $s t ; s t$ closer to $t$ than to $s b$. Distribution of trichobothria as illustrated in Figs. 19, 21.

Tibia IV, metatarsus IV and tarsus IV each with a long tactile seta (Fig. 25).

Morphometric ratios and linear measurements are presented in Table 1.

Distribution.-Montenegro, Yugoslavia;
epigean (in high elevation leaf-litter, soil, and humus). Probably endemic to the area.

Diagnosis.-From R. yaginumai, this new species is easily distinguished by the form of the pedipalpal articles (more elongate vs. less elongate; Figs. 17, 23) (Curčić et al. 1996a), by the relative position of the trichobothrium ist (closer to est than to isb vs. equidistant from est and $i s b$ ), by the pedipalpal length of females ( $4.49-5.33 \mathrm{~mm}$ vs. $3.245-3.845 \mathrm{~mm}$ ), by the pedipalpal chelal length to breadth ratio of females ( $3.35-3.63$ vs. 2.83-2.89), by the pedipalpal chelal length of females (1.64-1.69 mm vs. $1.16-1.33 \mathrm{~mm}$ ).

For comparison with $R$. hors new species see the 'Diagnosis' of that species.

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